

What is claimed is:

1. An image display apparatus for displaying a continuous image by using a plurality of images having an overlapping area, comprising:
  - a plurality of displaying means for displaying the images corresponding to the plurality of image signals;
  - interpolation arithmetic means for correcting a geometric displacement between the images displayed by said plurality of displaying means;
  - brightness correcting means for correcting brightness of the overlapping area of the images displayed by said plurality of displaying means; and
  - image picking-up means for picking up the images displayed by said plurality of displaying means;
- wherein when displaying the images, said plurality of displaying means use the plurality of image signals which are subjected to displacement correction of said interpolation arithmetic means and brightness correction of said brightness correcting means;
- wherein the interpolation arithmetic means detects a positional relationship between the images displayed by said plurality of displaying means based on the images picked-up by said image picking-up means, and corrects the displacement between the images obtained by said plurality of displaying means by using a correction coefficient calculated from the positional relationship; and
- wherein the image picking-up means picks up the images displayed by said plurality of displaying means by partially using an optical system of said plurality of displaying means.

2. An image display apparatus for displaying a continuous image by using a plurality of image signals which correspond to a plurality of images having an overlapping area, comprising:

5 a plurality of displaying means for displaying the images corresponding to the plurality of image signals;

10 interpolation arithmetic means for correcting a geometric displacement between the images displayed by said plurality of displaying means;

brightness correcting means for correcting brightness of the overlapping area of the images displayed by said plurality of displaying means;

15 image picking-up means for picking up the images displayed by said plurality of displaying means;

a frame memory for storing a total image signal as total image data which corresponds to a total image required to be displayed by said plurality of displaying means; and

20 a plurality of image memories for storing image signals as image data which respectively correspond to the images to be displayed by said plurality of displaying means;

25 wherein when displaying the images, said plurality of displaying means use the plurality of image signals which are subjected to displacement correction of said interpolation arithmetic means and brightness correction of said brightness correcting means;

30 wherein the interpolation arithmetic means detects a positional relationship between the images displayed by said plurality of displaying means based on the images picked-up by said image picking-up means, and corrects the displacement between the images obtained by said plurality of displaying means by using a correction coefficient calculated from the

positional relationship; and

wherein divided image signals are stored as divided image data in said plurality of image memories, after the divided image signals are read out from the frame memory storing the total image signal, on the basis of a positional relationship between the images displayed by said plurality of displaying means, the positional relationship being determined based on the images picked-up by said image picking-up means.

3. An image display apparatus for displaying a plurality of image signals produced from a plurality of image signals which have overlap areas such that the images are combined into a single continuous image, said image display apparatus comprising:

an interpolation calculating means for performing interpolation on respective ones of the plurality of image signals which produce the overlap areas, whereby any adjacent two of the plurality of images are matched to overlap each other;

a brightness converting means for correcting in brightness the image signals producing the overlap areas, whereby joints between the plurality of images are made inconspicuous;

a plurality of memories for storing, as image data, the plurality of image signals after the image signals producing the overlap areas are interpolated by the interpolation calculating means and corrected by the brightness converting means;

a plurality of displaying means for reading the image data stored in the plurality of memories, and for displaying the plurality of images as said single continuous image; and

an image-pickup means including an image-pickup device for picking up image signals corresponding to an image displayed by the plurality of display means;

5 wherein the interpolation calculating means performs the interpolation on the respective ones of the plurality of image signals by using a coefficient calculated based on positional relations of the plurality of display means, which are calculated from the image signals corresponding to the image displayed by the plurality of display means which are  
10 picked up by the image-pickup means.

4. An image display apparatus according to claim 3, further comprising an image dividing means for dividing an image desired to be displayed into the plurality of image  
15 signals.

5. An image display apparatus according to claim 3, wherein said brightness converting means multiplies a weighting coefficient from a weighting coefficient calculator  
20 by using a multiplier.

6. An image display apparatus according to claim 3, wherein said image-pickup means shares a part of an optical system of the displaying means.

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7. An image display apparatus according to claim 3, wherein said image-pickup means comprises a camera specifically for detecting displacement, provided independently of the image displaying apparatus, and said  
30 camera performs an image pickup operation in one of an entire projection area and a part of the projection area.

8. An image display apparatus according to claim 3, wherein said image-pickup means picks up a subject which has a good correlation, and detects displacement.

5           9. An image display apparatus according to claim 3, wherein the image-pickup means operates to pick up a reference image displayed by the displaying means, the interpolation calculating means does not perform interpolation and the brightness converting means does not perform  
10 conversion.

10. An image display apparatus for dividing and processing an image to be displayed on a screen, comprising:  
an image dividing means for dividing the image into a  
15 plurality of image signals;  
an interpolation calculating means for correcting displacement between the plurality of image signals;  
a brightness converting means for correcting a brightness between the plurality of image signals;  
20 a plurality of displaying means for displaying the plurality of image signals corrected by the interpolation calculating means and brightness converting means; and  
an image-pickup means including an image-pickup device for picking up an image displayed by the displaying means,  
25 wherein said interpolation calculating means obtains a plurality of positional relations of the image displayed by the displaying means from the image signals picked up by the image-pickup means, and interpolates displacement data using a displacement coefficient calculated in accordance with the  
30 positional relations.